

#### IV

### THE USE OF MISLOWITZER'S PORTABLE INCUBATOR "MONOTHERM" IN CULTURE OF THE GONOCOCCUS

By L. W. HARRISON

THE advantage of cultural tests in the diagnosis of gonorrhœa is now universally recognised. The difficulty is to obtain them in places that are far removed from a laboratory, or, at any rate, from an incubator into which the plates or slopes newly planted with secretion can be placed at once.

To meet this difficulty I have at various times suggested that the secretion be sent to the laboratory in capillary tubes because the gonococcus can remain alive in its native medium for a number of days at room temperature, but a method which, in some circumstances, seems likely to be better is to place the newly planted cultures in an incubator of the pattern invented by Professor E. Mislowitzer, Belgrade, which is called the "Monotherm." In his first paper<sup>1</sup> announcing the invention of this incubator, Mislowitzer reviewed the attempts of some others to make a transportable incubator. Thus the apparatus of A. Friedmann, Königsberg, relied on the heat from 3½ litres of water and weighed 8 kgm., while that of Hesse contained 10 litres of water and weighed 22 kgm. Walz and v. Esmarch made use of the principle of the warmth given off on recrystallisation of a solution of sodium acetate, but Walz's apparatus weighed 7 kgm., and the temperature, besides being too high at first, fell in a comparatively few hours to that of the surrounding atmosphere. Mislowitzer has made use of the principle that heat is evolved on recrystallisation of a solution, but instead of sodium acetate uses a mixture of fatty acids, which, after liquefaction by heat, recrystallises at 37° C. to 37·5° C., and remains at this temperature until solidification is complete. The construction of the Monotherm will be understood most easily by reference to Fig. 1, for which I am indebted to Dr. J. Drbohlav, whose

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article <sup>2</sup> describing it and experiments demonstrating its value should be studied in the original. The illustration shows a double-walled metal cylinder, *c*, between the two walls of which is the mixture of fatty acids mentioned above ; a glass cylinder, *d*, in which can be seen two rectangular Petri dishes, and in front of *c* and *d*, resting on the cap of *c*, two culture tubes, the cylinder being capable of containing both Petri dishes and culture tubes ;

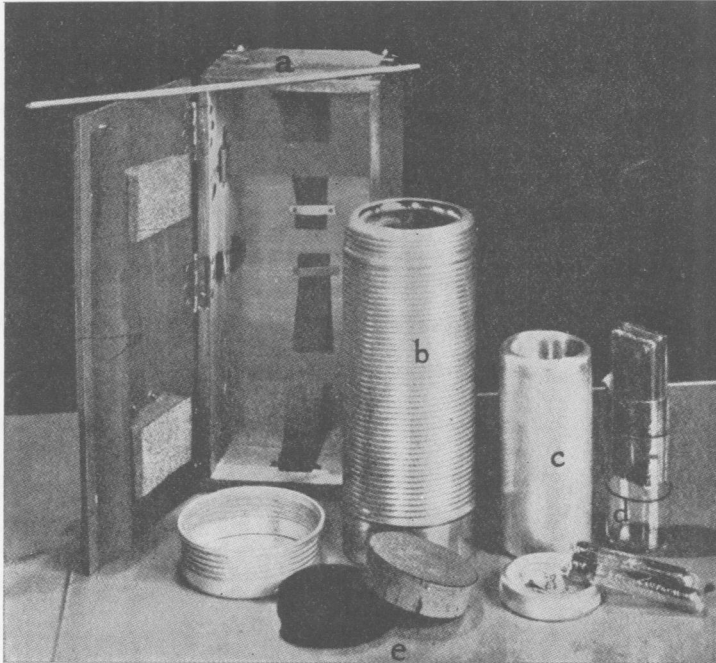


FIG. 1.—Portable incubator "Monotherm" of Mislowitzer.  
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a vacuum flask, *b*, into which *c* is placed ; and two circular pads and a cork, *e*, for closure of the flask when this has been loaded. Into the box, *a*, which is fitted with sponge pads, springs and elastic slings, the whole apparatus can be placed for transport by post if necessary. The whole outfit in its box weighs 5 lb. 14 oz. and measures  $13\frac{1}{2} \times 6 \times 5\frac{1}{2}$  inches. To put the incubator in action the calorigenic cylinder, *c*, is placed in boiling water for three to five minutes, removed, shaken well, held momentarily under the cold water tap to stabilise the temperature and put into the vacuum flask. Mislowitzer

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found that the temperature dropped only  $1.5^{\circ}$  C. to  $2^{\circ}$  C. in twelve hours. J. Drbohlav, who has used the apparatus for two years, has made a number of precise observations on the fall of temperature and found that, after a drop from  $40.1^{\circ}$  C. to  $37^{\circ}$  C. in one hour, the further fall in the next twenty-four hours was only  $3.55^{\circ}$  C. The value of such an apparatus for culture of delicate organisms such as the meningococcus and the gonococcus

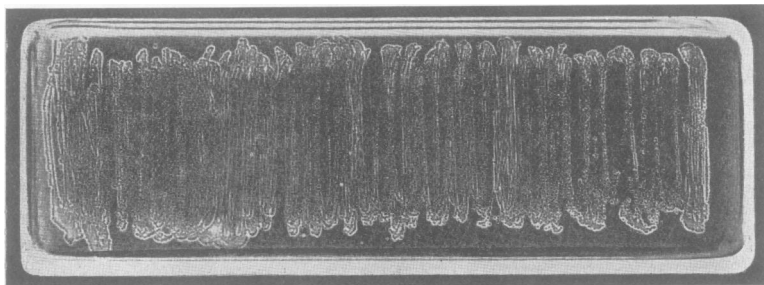


FIG. 2.—Culture of gonococci in a "Monotherm" Petri dish.  
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when one is a long distance from a laboratory must be obvious. Apart from this, it is an advantage if incubation can proceed during transport of the cultures to the laboratory. In a recent article Mislowitzer and Burian<sup>3</sup> report on the advantages of the Monotherm for culture of the gonococcus, and Fig. 2 shows such a culture on one of the special Petri dishes used in this incubator. It is made by "Mikrotherma," Narodni tr 35, Prague I, Czechoslovakia.

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